LARGE AIRCRAFT INFRARED COUNTERMEASURES (LAIRCM)

The Large Aircraft Infrared Countermeasures (LAIRCM) System enhances individual aircraft survival through improved aircrew situational awareness of the electromagnetic threat environment. The fundamental requirement for the LAIRCM system is to provide protection against man-portable, shoulder-fired, and vehicle launched infrared (IR) guided missiles. The system will be installed on the C-17, the C-130, and the KC-135 aircraft. LAIRCM will autonomously detect and declare IR threat missiles, then track and jam the missiles to create a miss.

The system consists of five basic elements: a Control Indicator Unit (CIU), a Missile Warning Subsystem (MWS) which may consist of either or both ultraviolet and infrared sensors, a Pointer/Tracker Transmitter (P/T) subsystem, a Countermeasures Processor (CP), and a Laser jam source subsystem. The CP is the master system controller and the interface among subsystems. Up to three laser jammers will be installed on each aircraft type. All the subsystems, with the exception of the laser jammer, are non-developmental items (NDI) that have been previously tested as part of the special operations C-130 Directed IR Countermeasures Program (DIRCM).

BACKGROUND INFORMATION

In response to the urgent requirement in the LAIRCM ORD, the Air Force Aeronautical Systems Center (ASC) developed an evolutionary strategy to yield a near-term solution for the protection of large transport type aircraft. The use of proven subsystem solutions, integrated into a LAIRCM system, is the first step in the LAIRCM Evolutionary Acquisition (EA) strategy to address the overall requirement. This first step, designated phase 1, is to identify a near-term LAIRCM solution. Four subsystems demonstrated the maturity and performance to provide a near-term solution. All or part of the selected subsystems will comprise the LAIRCM system. Four of the subsystems (CIU, P/T, CP, UV MWS) will come directly from the DIRCM Program, presently in production. The final subsystem will be a Multi-Band Laser Subsystem, which has undergone considerable laboratory and field testing.

The United Kingdom is the primary procurement authority for DIRCM; therefore, the system does not fall under the DoD 5000 procurement regulations. The United Kingdom has installed the system on nine different aircraft types and there are plans for integration on eight additional aircraft types. The DIRCM systems for the USAF special operations aircraft were bought under the UK contract. The special operations aircraft are currently undergoing a User Qualification Test on three different types of C-130s to ensure effective operation prior to deployment.

TEST & EVALUATION ACTIVITY

Since the LAIRCM program was just started during FY01, the key test activity has been the review of past T&E that is relevant to the program and the preparation of the TEMP. There has been a significant amount of testing on the DIRCM system, and some testing on the multi-band laser, that will be used for LARICM. Also, the operational user evaluation (OUE) for DIRCM on three versions of the C-130 was accomplished in FY01. The reports from these tests will be key to justify the abbreviated operational assessment (OA) planned in FY02. The TEMP for this program was signed in the 4QFY01.

TEST & EVALUATION ASSESSMENT

Since this program is using NDI items, it is relying heavily on tests that have been done in the past for the DIRCM system and the multi-band laser. This has resulted in an extremely compressed test schedule between Milestone B (4QFY01) and the Milestone C (3QFY02). Milestone C low rate initial production (LRIP) will be supported only by the review of past test results and an OA consisting of the jammer effectiveness tests. The multi-band laser will be tested as part of the LAIRCM system at the Air Force Electronic Warfare Evaluation Simulator (AFEWES) and at the Aerial Cable Car Facility (ACF) during the OA in the first and second quarter FY02 to support the LRIP decision. LAIRCM will undergo initial operational evaluation on the C-17 during FY04 to support the full rate production decision. No aircraft integration will be accomplished on the C-17 prior to Milestone C. OT&E on the integrated C-17 aircraft will be accomplished prior to the full rate production decision in FY04. Even though the DIRCM system has been integrated on several aircraft already, none have the new multi-band laser incorporated and every aircraft installation experiences unforeseen problems. Thus, the T&E plan has created a moderate risk for the program. Lesser risk is envisioned for the C-130 since the DIRCM system has already been integrated into this airframe several times.